

Name _____ Date _____

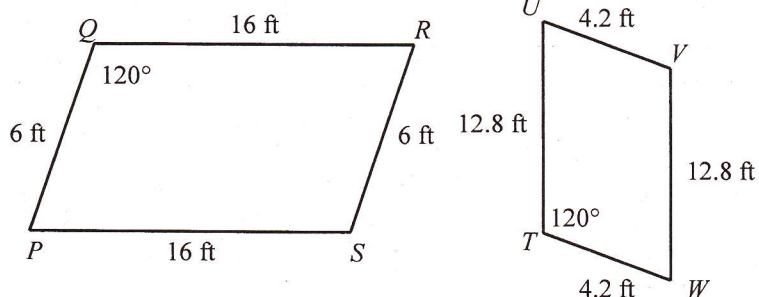
Geometry Chapter 11 Similarity **REVIEW**

Solve the proportion.

1. $\frac{11}{4} = \frac{3}{x-4}$

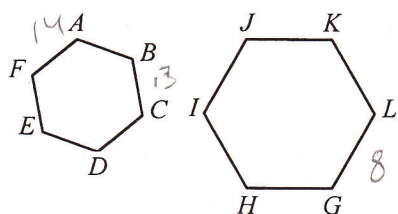
2. $\frac{x}{20} = \frac{x+2}{28}$

3. Farmer Nguyen wants to plant his orchards with peach trees and plum trees in the ratio of 8 hectares to 11 hectares. If he has 1482 hectares of orchards, how many peach trees should he plant?
4. On a blueprint, the scale indicates that 8 centimeters represent 20 feet. What is the length of a room that is 12.8 centimeters long and 8 centimeters wide on the blueprint?
5. Use the scale 1 inch to 6 inches to find the actual measures of a boat if a model of the boat is 19 inches by 43 inches.
6. Determine whether parallelograms $QRSP$ and $TUVW$ are similar. Explain why or why not.



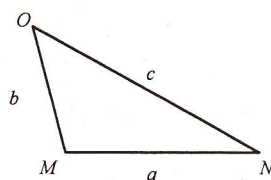
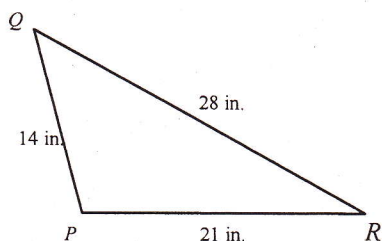
7. $ABCDEF \sim GHIJKL$

Find HI to the nearest tenth if $BC = 13$ millimeters, $FA = 14$ millimeters, and $LG = 8$ millimeters.

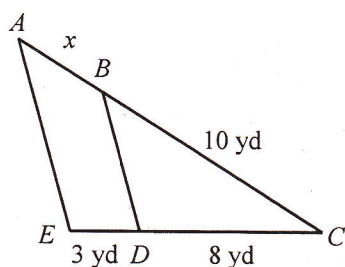


8. $\triangle QPR \sim \triangle OMN$

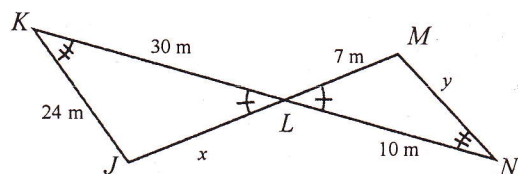
Find a , b , and c if the perimeter of $\triangle OMN$ is 45 inches. All measurements are in inches.



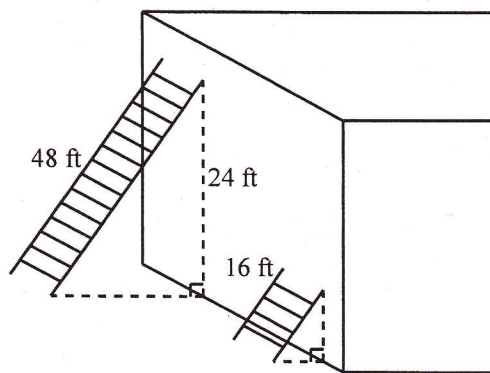
9. Given that $\overline{AE} \parallel \overline{BD}$, find x .



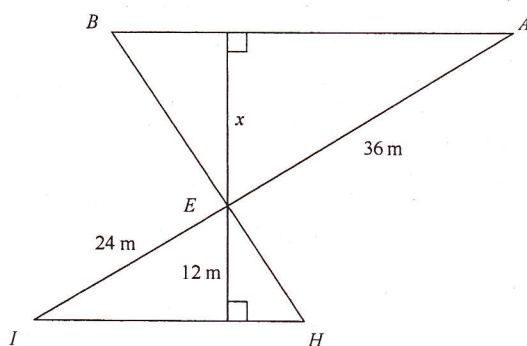
10. Find x and y .



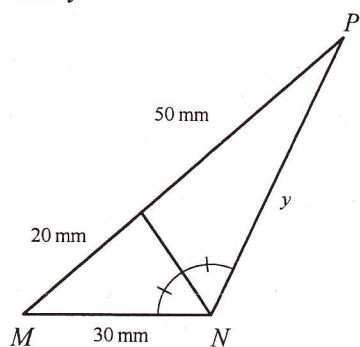
11. Two ladders are leaning against a wall at the same angle as shown. How far up the wall does the shorter ladder reach?



12. $\triangle BAE \sim \triangle HIE$
Find x .



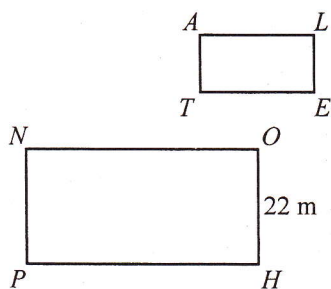
13. Find y .



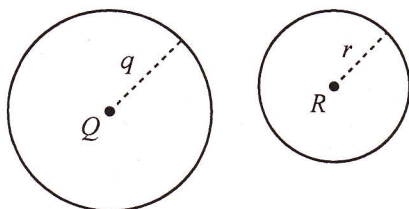
14. $TELA \sim PHON$

$$\frac{\text{Area of } TELA}{\text{Area of } PHON} = \frac{1}{4}$$

Find EL .

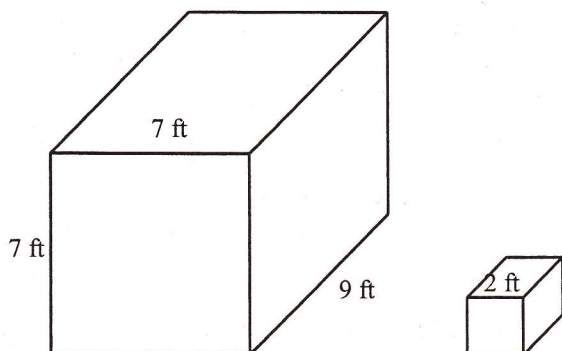


15. The area of circle Q is 16π square centimeters. Find the area of circle R if $\frac{q}{r} = \frac{4}{3}$.

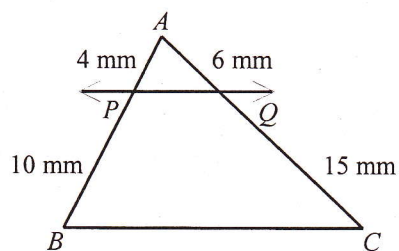


16. The ratio of the volumes of two similar rectangular prisms is $\frac{125}{64}$. What is the ratio of their heights?
17. The volumes of two similar solids are 1331 cubic meters and 64 cubic meters. The surface area of the larger solid is 363 square meters. What is the surface area of the smaller solid?

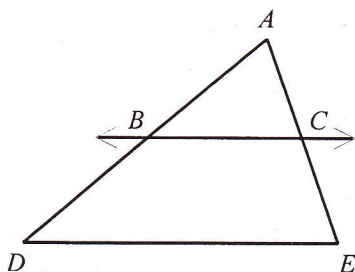
18. The rectangular shipping crates below are similar.
- Find the similarity ratio of the crate on the left to the crate on the right.
 - Find the ratio of their volumes.



19. Is $\overline{BC} \parallel \overleftrightarrow{PQ}$?



20. $\overline{DE} \parallel \overleftrightarrow{BC}$, $AB = 6$ yards, $BC = 7$ yards, $AE = 16$ yards, and $DE = 14$ yards. Find CE .



[1] $\frac{56}{11}$ _____

[2] 5 _____

[3] 624 hectares _____

[4] 32 ft _____

[5] $9\frac{1}{2}$ ft by $21\frac{1}{2}$ ft _____

[6] The figures are not similar. Although the corresponding angles are congruent, the corresponding sides are not proportional. _____

[7] 7.4 mm _____

[8] $a = 15$ in., $b = 10$ in., $c = 20$ in. _____

[9] $3\frac{3}{4}$ yd _____

[10] $x = 21$ m; $y = 8$ m _____

[11] 8 ft _____

[12] 18 m _____

[13] 75 mm _____

[14] 11 m _____

[15] $9\pi \text{ cm}^2$ _____

[16] $\frac{5}{4}$ _____

[17] 48 m^2 _____

a. $\frac{7}{2}$

[18] b. $\frac{343}{8}$ _____

[19] Yes _____

[20] 8 yd _____

GEOM. Ch. 11 REVIEW-1-

$$(1) \frac{11}{4} = \frac{3}{x-4}$$

$$11(x-4) = 4 \cdot 3$$

$$\begin{array}{r} 11x - 44 = 12; \\ +44 \quad +44 \end{array} \quad \frac{11x}{11} = \frac{56}{11}$$

$$\underline{x = \frac{56}{11}}$$

$$(2) \frac{x}{20} = \frac{x+2}{28} ; \quad 28x = 20(x+2)$$

$$\begin{array}{r} 28x = 20x + 40 \\ -20x \quad -20x \end{array}$$

$$\frac{8x}{8} = \frac{40}{8} \quad \underline{x = 5}$$

$$(3) 1482 \div (8+11) = 1482 \div 19 = 78$$

$$78 \cdot 8 = \underline{624 \text{ HECTARES}}$$

$$(4) \frac{\overset{\text{(cm)}}{8}}{12.8} = \frac{\overset{\text{(ft)}}{20}}{x}$$

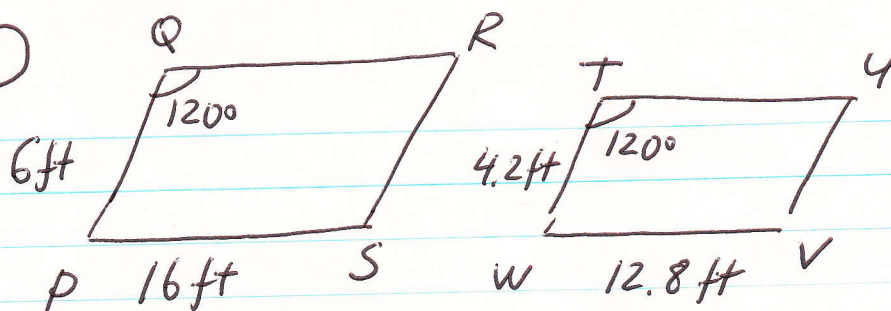
$$x = \frac{20 \cdot 12.8}{8} = 32 \text{ ft}$$

$$(5) 19 \text{ in} \cdot 6 = \underline{114 \text{ in}} \div 12 \text{ in} = \underline{9 \frac{1}{2} \text{ ft}}$$

$$43 \text{ in} \cdot 6 = \underline{258 \text{ in}} \div 12 \text{ in} = \underline{21 \frac{1}{2} \text{ ft}}$$

GEOM CH. 11 REVIEW -2-

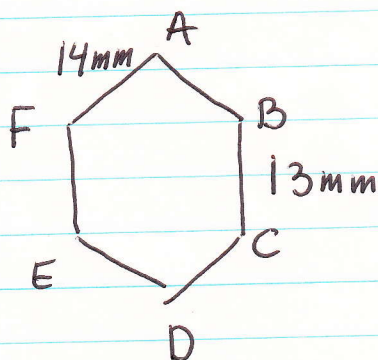
(6)



$$\frac{6}{4.2} = \frac{16}{12.8}$$

$$1.43 \neq 1.25$$

(7)



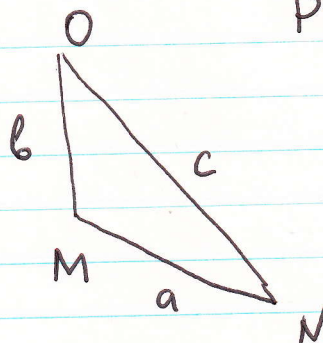
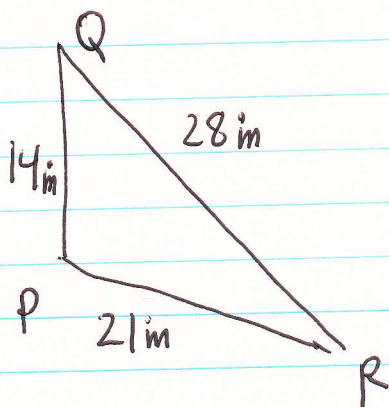
$$\frac{14}{8} = \frac{13}{x}$$

$$14x = 104$$

$$14x = 104$$

$$x = \frac{104}{14} \approx 7.4 \text{ mm}$$

(8)



$$P_{PQR} = 14 + 28 + 21 = 63 \text{ in}$$

$$\frac{63}{45} = \frac{7}{5}$$

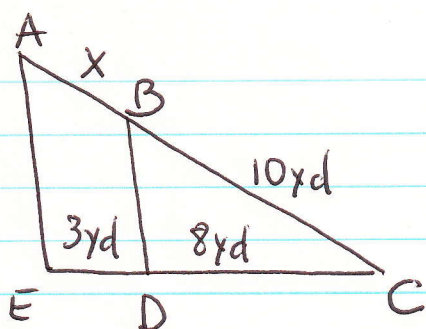
$$\frac{28}{c} = \frac{7}{5}, \quad c = 20 \text{ in}$$

$$\frac{21}{a} = \frac{7}{5}, \quad a = 15 \text{ in}$$

$$\frac{14}{b} = \frac{7}{5}$$

$$b = 10 \text{ in}$$

(9)

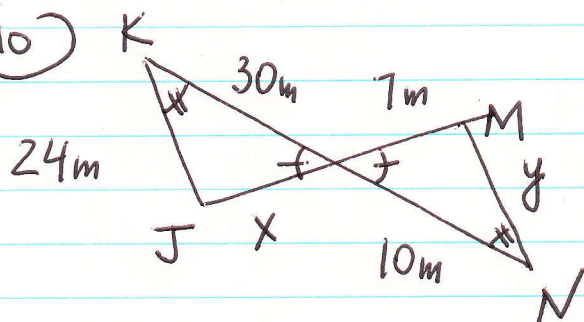


$$\frac{10}{x} = \frac{8}{3}$$

$$8x = 30$$

$$x = \frac{30}{8} = \underline{3.75 \text{ yd}}$$

(10)



$$\frac{30}{10} = \frac{x}{7}$$

$$10x = 210$$

$$x = \frac{210}{10} = \underline{21 \text{ m}}$$

$$\frac{30}{10} = \frac{24}{y}$$

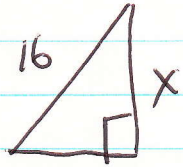
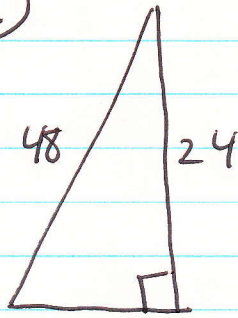
$$30y = 24 \cdot 10$$

$$30y = 240$$

$$y = \frac{240}{30} = \underline{8 \text{ m}}$$

GEOM. Ch. 11 Review -4-

(11)

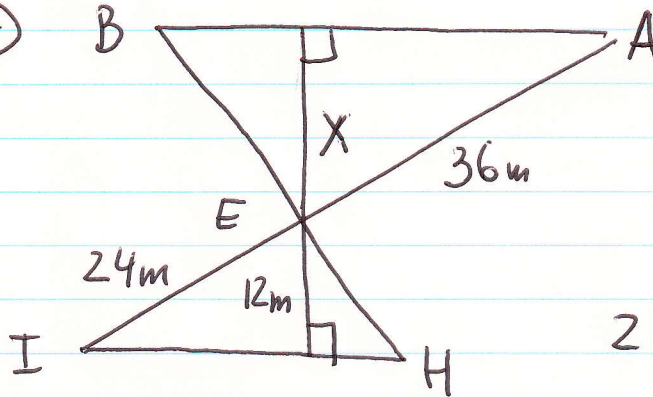


$$\frac{48}{24} = \frac{16}{x}$$

$$48x = 16 \cdot 24$$

$$x = \frac{16 \cdot 24}{48} = \underline{8 \text{ ft}}$$

(12)

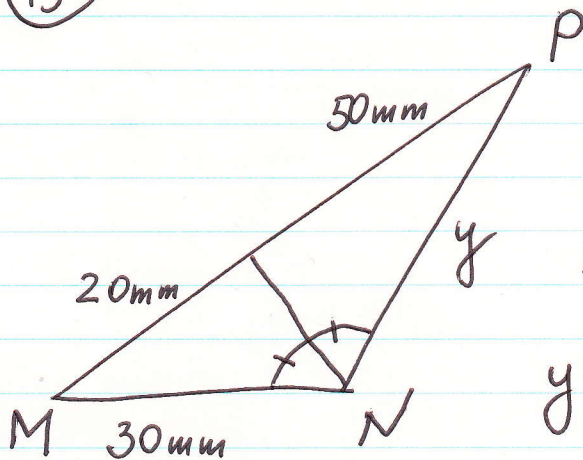


$$\frac{36}{24} = \frac{x}{12}$$

$$24x = 36 \cdot 12$$

$$24x = 432 ; \quad x = \frac{432}{24} = 18 \text{ m}$$

(13)

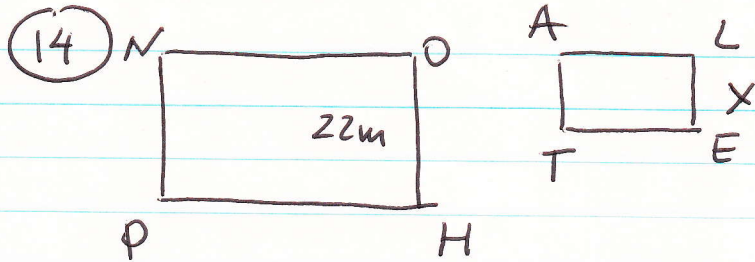


$$\frac{20}{30} = \frac{50}{y}$$

$$20y = 50 \cdot 30$$

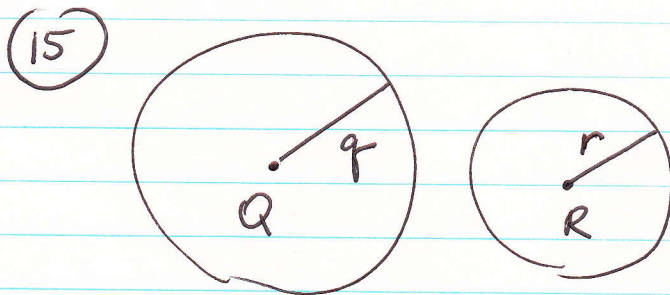
$$y = \frac{50 \cdot 30}{20} = 75 \text{ mm}$$

GEOM ch.11 REVIEW [-5-]



$$\frac{\text{AREA OF TECLA}}{\text{AREA OF PHON}} = \frac{1}{4} \quad \frac{x}{22} = \sqrt{\frac{1}{4}}$$

$$\frac{x}{22} = \frac{1}{2} ; 2x = 22 ; x = \frac{22}{2} = \underline{11m}$$



$$\frac{A_Q = 16\pi \text{ cm}^2}{A_R = ?}$$

$$\frac{q}{r} = \frac{4}{3}$$

$$\frac{A_Q}{A_R} = \left(\frac{4}{3}\right)^2 = \frac{16\pi}{x}$$

$$\frac{16}{9} = \frac{16\pi}{x} \quad \frac{1}{9} = \frac{\pi}{x} ; x = \underline{9\pi \text{ cm}^2}$$

(16) $\frac{V_2}{V_1} = \frac{125}{64}$

$$\frac{H_2}{H_1} = \sqrt[3]{\frac{125}{64}} = \frac{5}{4}$$

(17) $\sqrt[3]{\frac{1331}{64}} = \frac{11}{4} \leftarrow \text{LINEAR DIMENSIONS RATIO}$

$$\frac{11^2}{4^2} = \frac{121}{16} \quad \text{AREAS RATIO}$$

$$\frac{363}{x} = \frac{121}{16} ; x = \underline{48m^2}$$

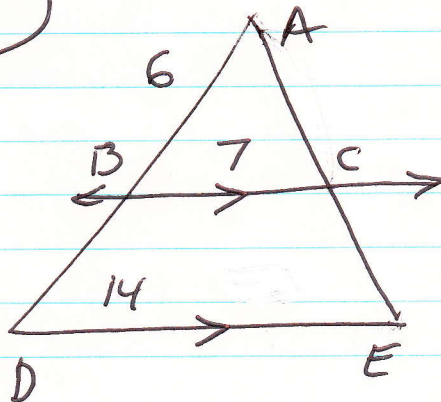
GEOM ch. 11 REVIEW -6-

(18a) $\frac{7}{2}$

(18b) $\left(\frac{7}{2}\right)^3 = \frac{7^3}{2^3} = \frac{343}{8}$

(19) $\frac{4}{10} \stackrel{?}{=} \frac{6}{15} ; \frac{2}{5} = \frac{2}{5}$
 $BC \parallel PQ$

(20)



$$\frac{AE = 16 \text{ yards}}{CE = ?}$$

$$\frac{7}{14} = \frac{x}{16}$$

$$14x = 112$$

$$x = \frac{112}{14} = \underline{8 \text{ yards}}$$